PROJECT:

Road M1-4.78, High Priority Watercourse Restoration

EXISTING CONDITIONS AND PROJECT DESCRIPTION:

At milepost 4.78 along the main access road M1.0 (see Location Map, Sheet 2) is a Class II watercourse crossing that includes a 100-foot long fill prism and a 36" corrugated metal culvert. The culvert is significantly undersized, sediment has accumulated on the floodplain immediately upstream of the culvert, mounds of fill disrupt the topography of the floodplain, and the steamflow is forced into an abrupt 90 degree turn at the culvert inlet. In January of 2004, a fillslope failure along Road M9.0 delivered a significant amount of sediment to this watercourse approximately 1,300 feet upstream from the culvert. The resultant discharge of water and sediment buried the culvert inlet and water then flowed onto the road. Once the culvert was buried, inside ditches draining M9.0 and M1.0 backed-up causing more uncontrolled water flow across the road. The California Department of Parks and Recreation (DPR) is proposing to replace this culvert with a railcar bridge and to remove much of the stored sediment and artificial fill in order to restore a more naturally functioning watercourse and floodplain at this location. Project tasks include:

- ·remove stored sediment and fill mounds immediately upstream and downstream of the culvert;
- restore natural floodplain and channel gradient:
- ·reduce the roadway width:
- remove the existing 36-inch culvert and replace it with a railcar bridge: and
- construct rocked rolling-dips.

TASK DESCRIPTIONS FOR WORK AT M1-4.78

The full set of plans for the proposed work include these plan sheets and a booklet titled: Standard Specifications & Best Management Practices for Disturbed Lands Remediation. These plan sheets alone are insufficient to guide the proposed work.

0+00 to 5+00 Excavate and stockpile existing gravel road base (approximately 110 cy). This rock is to be reused to surface the road following removal of the fillslope.

0+50 to 2+60 After brushing only the fillslope (Specifications item 5.01), remove existing oversteepened fillslope (approximately 200 cy) and reduce roadway width to 20 feet; grade excavated fillslope to 3:1 (horizontal:vertical), and transition (blend) excavated slopes to match existing fillslopes to the west at Station 5+00; transition road width appropriately to match existing road west of Station 5+00 and maintain inside ditch; haul all excavated material offsite to appropriate disposal site. This grading is to be coordinated with the removal of the existing crossing fill prism with the goal of restoring a 35-foot wide floodplain between the two 3:1 fillslopes. Moreover, an 80foot long railcar bridge is to be installed meaning that the span between the road approaches must be no more than 60 feet; the final span will be determined in the field by the PI. Finish grade (Specifications item 5.07) and prepare graded slopes for seeding and installation of erosion control blanket (Specifications item 4.07).

3+50 to 4+65 After brushing only the fillslope (Specifications item 5.01), remove existing oversteepened fillslope (approximately 200 cy) and reduce roadway width to 20 feet; grade excavated fillslope to 3:1 (horizontal:vertical), and transition (blend) excavated slopes to match existing fillslopes to the west at Station 5+00; transition road width appropriately to match existing road west of Station 5+00 and maintain inside ditch; haul all excavated material offsite to appropriate disposal site. This grading is to be coordinated with the removal of the existing crossing fill prism with the goal of restoring a 35-foot wide floodplain between the two 3:1 fillslopes. Moreover, an 80foot long railcar bridge is to be installed meaning that the span between the road approaches must be no more than 60 feet; the final span will be determined in the field by the PI. Finish grade (Specifications item 5.07) and prepare graded slopes for seeding and installation of erosion control blanket (Specifications item 4.07).

2+60 to 3+50 Significant grading is proposed for this segment that crosses the floodplain and the active channel that flows year-round. Consequently, a diversion structure (Specifications 5.06b) shall be constructed to maintain a dry working area and minimal offsite sediment discharge.

2+60 to 3+50 Remove existing fill prism and culvert (approximately 900 cy); excavate fill mounds and accumulated sediment on the floodplain immediately upstream of the culvert for a distance of approximately 70 feet (approximately 400 cv): also remove any remaining fill material from the floodplain immediately downstream of the culvert for a distance of 50 feet; the purpose of this grading is to remove accumulated earth materials and restore the natural floodplain and channel gradient that has been adversely impacted by the fill prism and culvert. A few large redwood trees will be encountered during the grading activities and may have to be removed. The final decision on removing any redwood trees will be made by the PI as the grading proceeds. All rocks and large wood greater than 12inches in diameter that are encountered during the project grading are to be stockpiled for future use as channel control elements: all other excavated materials are to be hauled offsite to an appropriate disposal site (i.e., the old quarry along M1 at milepost 0.8). Final depth and lateral extent of earth materials to be removed as well as floodplain grade (~0.036) will be determined on site by the PI during the grading.

Expect to encounter deleterious material (e.g., large wood and logging debris) during the excavation of the fill material and pay close attention to indicators of the native ground surface. The goal of this rough grading is to create a 35-foot wide floodplain that matches the upstream and downstream floodplain areas. The restored floodplain shall be graded (min. 2 percent) to drain towards the central or longitudinal axis of the floodplain. Once the floodplain has been created, excavate a 6-foot wide active channel corridor through the center of the floodplain matching the upstream and downstream channel segments. Under the

direction of the PI place various roughness elements (e.g., large wood and large rocks) on the reconstructed floodplain to facilitate sinuous streamflow through the center of the floodplain.

2+60 to 2+80 Bridge abutments (design by others) shall be founded in competent materials below the existing/remaining fill as determined by a licensed engineering geologist or geotechnical engineer. Place slope protection (rip-rap) aprons on fillslopes beneath the bridge; rip-rap apron shall extend upand downstream sufficiently to serve as energy dissipater for water discharge onto the slope from the roadway and/or inside ditch; rip-rap shall be angular well-indurated rock (rings when hit with hammer) between 12 inches to 18-inches in diameter (approximately quarter-ton rocks) and approved by the PI prior to delivery onsite.

3+30 to 3+50 Bridge abutments (acquired by DPR) shall be founded in competent materials below the existing/remaining fill as determined by a licensed engineering geologist or geotechnical engineer. Place slope protection (rip-rap) aprons on fillslopes beneath the bridge; rip-rap apron shall extend upand downstream sufficiently to serve as energy dissipater for water discharge onto the slope from the roadway and/or inside ditch; rip-rap shall be angular well-indurated rock (rings when hit with hammer) between 12 inches to 18-inches in diameter (approximately quarter-ton rocks) and approved by the PI prior to delivery onsite.

2+60 to 3+50 Install new railcar bridge (acquired by others) 80 feet long and 16 feet wide as per the manufacturer's specifications and as approved by the PI.

3+50 to 4+00 Remove fill and culvert beneath intersection with Road M9.0; construct rocked rolling dip and armor ditch to control water draining from the inside ditches of M1.0 and M9.0.

2+20 to 2+60 Clear and armor inside ditch to control water draining from M1.0.

0+00 Construct rocked rolling dip (with energy dissipater at outlet) to drain inside ditch.

5+50 Construct rocked rolling dip (with energy dissipater at outlet) to drain inside ditch.

POST-CONSTRUCTION EROSION CONTROL

0+00 to 5+00 Following the finish grading, all disturbed slope areas will be seeded under the direction of DPR and then erosion control blankets (ECB) shall be anchored on all disturbed slope areas (Specifications item 4.07). Following installation of the ECBs, surface the road as necessary with angular gravel (3/4" minus) to a minimum thickness of 4 inches using stockpiled road base and imported gravel if necessary.







